<Session 6: Wildlife Tracking II>Fine-scale movement of Adélie penguins commuting to and from foraging sites

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Fine-scale movement of Adélie penguins commuting to and from foraging sites

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Abstract

Adélie penguins commute between the colony and foraging sites at sea during breeding season. The choice of commuting route and movement mode (e.g. walking vs. swimming) should reflect the movement strategies of penguins to forage and breed successfully. Here, we studied the fine-scale movement of Adélie penguins using GPS-depth loggers at the Hukuro Cove colony, located in the fast sea-ice area of Antarctica. We calculated movement parameters during commuting travels of 14 foraging trips. Outward and inward travels accounted for 13.4 and 10.1 % in duration, 17.9 and 18.4 % in distance traveled, respectively. During inward travels, penguins swam along cracks and walked over sea-ice for 45 and 37 % of duration, 62 and 28 % of distance traveled. Traveling speed and straightness index (calculated as the ratio between distance travelled and beeline distance) were 0.78 m/sec and 0.72 in swimming along cracks, and 0.44 m/sec and 0.88 in walking over sea-ice. Penguins were able to travel faster by swimming, even though their traveling routes along cracks were more sinuous than that of walking over sea-ice. We suggest that penguins chose to swim along cracks if they could, or walked straight over sea-ice to deliver food to their chicks quickly.

Keywords: *Antarctic, dive, foraging trip, GPS, inshore*